100 **APPLICATIONS**
101 .Mail processing
102 ..ZIP code
103 .Target tracking or detecting
104 .Vehicle or traffic control (e.g., auto, bus, or train)
105 ..License plate
106 .Range or distance measuring
107 .Motion or velocity measuring
108 .Surface texture or roughness measuring
109 .Seismic or geological sample measuring
110 .Animal, plant, or food inspection
111 .Textiles or clothing
112 .Document or print quality inspection (e.g., newspaper, photographs, etc.)
113 .Reading maps, graphs, drawings, or schematics
114 .Reading aids for the visually impaired
115 .Personnel identification (e.g., biometrics)
116 ..Using a combination of features (e.g., signature and fingerprint)
117 ..Using a characteristic of the eye
118 ..Using a facial characteristic
119 ..Using a signature
120 ...Sensing pressure together with speed or acceleration
121 ...Sensing pressure only
122 ...Sensing speed or acceleration only
123 ...Sensing geometrical properties
124 ..Using a fingerprint
125 ...Extracting minutia such as ridge endings and bifurcations
126 ...With a guiding mechanism for positioning finger
127 ...With a prism
128 .Biomedical applications
129 ..DNA or RNA pattern reading
130 ..Producing difference image (e.g., angiography)
131 ..Tomography (e.g., CAT scanner)
132 ..X-ray film analysis (e.g., radiography)
133 ..Cell analysis, classification, or counting
134 ...Blood cells
135 .Reading paper currency
136 .Reading coins
137 .Reading bank checks (e.g., documents bearing E-13B type characters)
138 ..Reading monetary amount
139 ..Reading MICR data
140 ...Including an optical imager or reader
141 .Manufacturing or product inspection
142 ..Bottle inspection
143 ..Inspection of packaged consumer goods
144 ..Mask inspection (e.g., semiconductor photomask)
145 ..Inspection of semiconductor device or printed circuit board
146 ...Measuring external leads
147 ...Inspecting printed circuit boards
148 ...At plural magnifications or resolutions
149 ...Fault or defect detection
150 ....Faulty soldering
151 ...Alignment, registration, or position determination
152 ..Tool, workpiece, or mechanical component inspection
153 .Robotics
154 .3-D or stereo imaging analysis
155 **LEARNING SYSTEMS**
156 .Neural networks
157 ..Network learning techniques (e.g., back propagation)
158 ..Network structures
159 .Trainable classifiers or pattern recognizers (e.g., adaline, perceptron)
160 ..Generating a standard by statistical analysis
161 ..Alphanumerics
162 **COLOR IMAGE PROCESSING**
163 .Drop-out color in image (i.e., color to be removed)
164 .Image segmentation using color
165 .Pattern recognition or classification using color
166 .Compression of color images
167 .Color correction
168 **HISTOGRAM PROCESSING**

169 .With a gray-level transformation (e.g., uniform density transformation)
170 .With pattern recognition or classification
171 .For segmenting an image
172 .For setting a threshold
173 **IMAGE SEGMENTATION**
174 .Using projections (i.e., shadow or profile of characters)
175 .Separating document regions using preprinted guides or markings
176 .Distinguishing text from other regions
177 .Segmenting individual characters or words
178 ..Separating touching or overlapping characters
179 ..Segmenting hand-printed characters
180 .Region labeling (e.g., page description language)
181 **PATTERN RECOGNITION**
182 .Limited to specially coded, human-readable characters
183 ..Characters formed entirely of parallel bars (e.g., CMC-7)
184 ..With separate timing or alignment marks
185 .Ideographic characters (e.g., Japanese or Chinese)
186 .Unconstrained handwriting (e.g., cursive)
187 .On-line recognition of handwritten characters
188 ..Writing on ordinary surface (i.e., electronics are in pen)
189 ..With a display
190 .Feature extraction
191 ..Multispectral features (e.g., frequency, phase)
192 ..Feature counting
193 ...Counting intersections of scanning lines with pattern
194 ...Counting individual pixels or pixel patterns
195 ..Local or regional features
196 ...Slice codes
197 ...Directional codes and vectors (e.g., Freeman chains, compasslike codes)
198 ....Extracted from alphanumeric characters
199 ...Pattern boundary and edge measurements
200 ....Measurements made on alphanumeric characters
201 ...Point features (e.g., spatial coordinate descriptors)
202 ...Linear stroke analysis (e.g., limited to straight lines)
203 ...Shape and form analysis
204 ....Topological properties (e.g., number of holes in a pattern, connectivity, etc.)
205 ...Local neighborhood operations (e.g., 3x3 kernel, window, or matrix operator)
206 ..Global features (e.g., measurements on image as a whole, such as area, projections, etc.)
207 ..Waveform analysis
208 ...With a tapped delay line
209 .Template matching (e.g., specific devices that determine the best match)
210 ..Spatial filtering (e.g., holography)
211 ...With electrically controlled light modulator or filter
212 ..Nonholographic optical mask or transparency
213 ...Using both positive and negative masks or transparencies
214 ...With a display
215 ..Using dynamic programming or elastic templates (e.g., warping)
216 ..At multiple image orientations or positions
217 ..Electronic template
218 ...Comparator
219 ....Determining both similarities and differences
220 ....Calculating weighted similarity or difference (e.g., don`t-care areas)
221 ....Counting difference pixels
222 .....Using an Exclusive-OR gate
223 ...Resistor matrix
224 .Classification
225 ..Cluster analysis
226 ..Sequential decision process (e.g., decision tree structure)

227 ...With a multilevel classifier
228 ..Statistical decision process
229 .Context analysis or word recognition (e.g., character string)
230 ..Trigrams or digrams
231 ..Checking spelling for recognition
232 **IMAGE COMPRESSION OR CODING**
233 .Including details of decompression
234 .Parallel coding architecture
235 .Substantial processing of image in compressed form
236 .Interframe coding (e.g., difference or motion detection)
237 .Gray level to binary coding
238 .Predictive coding
239 .Adaptive coding (i.e., changes based upon history, activity, busyness, etc.)
240 .Pyramid, hierarchy, or tree structure
241 .Polygonal approximation
242 .Contour or chain coding (e.g., Bezier)
243 .Shape, icon, or feature-based compression
244 .Lossless compression
245 ..Run-length coding
246 ..Huffman or variable-length coding
247 ..Arithmetic coding
248 .Transform coding
249 ..Fractal
250 ..Discrete cosine or sine transform
251 .Quantization
252 ..Error diffusion or dispersion
253 ..Vector quantization
254 **IMAGE ENHANCEMENT OR RESTORATION**
255 .Focus measuring or adjusting (e.g., deblurring)
256 .Object boundary expansion or contraction
257 ..Dilation or erosion (e.g., opening or closing)
258 ..Line thinning or thickening
259 ...Skeletonizing
260 .Image filter
261 ..Adaptive filter
262 ..Median filter
263 ..Highpass filter (i.e., for sharpening or enhancing details)
264 ..Lowpass filter (i.e., for blurring or smoothing)
265 ..Recursive filter
266 .Edge or contour enhancement
267 ..Minimize discontinuities in dot-matrix image data (i.e., connecting or merging the dots)
268 ..Minimize discontinuities at boundaries of image blocks (i.e., reducing blocking effects or effects of wrap-around)
269 ..Minimize jaggedness in edges (e.g., anti-aliasing)
270 .Variable threshold, gain, or slice level
271 ..Based on the results of a count
272 ..Based on a local average, mean, or median
273 ..Based on peak levels
274 .Intensity, brightness, contrast, or shading correction
275 .Artifact removal or suppression (e.g., distortion correction)
276 **IMAGE TRANSFORMATION OR PREPROCESSING**
277 .Transforming each dimension separately
278 .Correlation
279 .Convolution
280 .Fourier transform
281 .Walsh, Hough, or Hadamard transform
282 .Selecting a portion of an image
283 ..Using a mask
284 .Combining image portions (e.g., portions of oversized documents)
285 .Mapping 2-D image onto a 3-D surface
286 .Measuring image properties (e.g., length, width, or area)
287 ..Detecting alignment marks
288 ..Determining center of gravity or moment
289 ..Determining amount an image is rotated or skewed
290 ...Where the image is a character, word, or text
291 ..Determining the position of an object

292 ...Where the object is a character, word, or text
293 .Changing the image coordinates
294 ..Registering or aligning multiple images to one another
295 ..To position or translate an image
296 ..To rotate an image
297 ...Rotation of image is limited to 90 degrees, 180 degrees, or 270 degrees
298 ..To change the scale or size of an image
299 ...Raising or lowering the image resolution (e.g., subpixel accuracy)
300 ....Interpolation
301 ...Where the image is an alphanumeric character
302 .Multilayered image transformations
303 ..Pipeline processing
304 ..Parallel processing
305 .Image storage or retrieval
306 ..Using identification indicia on document
307 .General purpose image processor
308 ..Morphological operations (i.e., local neighborhood operations)
309 **EDITING, ERROR CHECKING, OR CORRECTION (E.G., POSTRECOGNITION PROCESSING)**
310 .Correcting alphanumeric recognition errors
311 .Including operator interaction
312 **IMAGE SENSING**
313 .Hand-held
314 ..Sensing mechanism in stylus
315 ..Sensing mechanism in platen
316 .Curve tracer
317 .Sensor control (e.g., OCR sheet controls copier or fax)
318 .Multiple scanning
319 ..Prescanning
320 .Magnetic
321 .Optical (e.g., OCR)
322 ..Single spot
323 ..Single line
324 ..Full retina
325 **MISCELLANEOUS**

FOREIGN ART COLLECTIONS

FOR 000 **CLASS-RELATED FOREIGN DOCUMENTS**